7. The method of claim 3 wherein the initial adsorbent volume and at least one subsequent adsorbent volume are located in separate canisters that are connected to permit sequential contact by the fuel vapor.

8. The method of claim 1 wherein the initial adsorbent volume and the subsequent adsorbent volume are activated carbon derived from materials selected from the group consisting of wood, peat, coal, coconut, lignite, petroleum pitch, petroleum coke, coal tar pitch, fruit pits, nut shells, sawdust, wood flour, synthetic polymer, and natural polymer having been activated by a process selected from the group consisting of chemical, thermal, and combined chemical/thermal activation methods.

9. The method of claim 1 wherein the initial adsorbent volume and the subsequent adsorbent volume are inorganic materials selected from the group consisting of zeolites, porous silica, porous alumina, pillared clays, and molecular sieves.

10. The method of claim 1 wherein the initial adsorbent volume and the subsequent adsorbent volume are porous polymers.

11. The method of claim 1 wherein the subsequent adsorbent volume exhibits adsorption capacities achieved by volumetric dilution.

12. The method of claim 11 wherein the volumetric dilution is accomplished by the addition of a non-adsorbing filler as a co-ingredient by an addition process selected from the group consisting of addition with the activated carbon raw material prior to activation, addition with the adsorbent before forming into a shaped particle or monolith, and a combination thereof.

13. The method of claim 11 wherein the volumetric dilution is accomplished by forming the adsorbent into high voidage shapes selected from the group consisting of stars, hollow cylinders, asterisks, spirals, cylinders, and configured ribbons.

14. The method of claim 11 wherein the volumetric dilution is accomplished by forming the adsorbent into a honeycomb or monolith shape.

15. The method of claim 11 wherein the volumetric dilution is accomplished by the use of inert spacer particles, trapped air spaces, foams, fibers, and screens external to the adsorbent.

16. The method of claim 12 wherein the non-adsorbing filler is a solid after processing.

17. The method of claim 12 wherein the non-adsorbing filler is volatized or combusted to form voidages larger than 50 Å width within the shaped particle or monolith.

18. In a method of reducing fuel vapor emissions in an automotive evaporative emissions control system comprising removing at least one volatile organic compound from a volatile organic compound-containing fuel vapor by routing the fuel vapor through a vapor adsorbent, the improvement comprising sequentially routing the fuel vapor through an initial adsorbent material-containing volume wherein the initial adsorbent material is characterized by an incremental adsorption capacity at 25° C. of greater than 35 g n-butane/L between vapor concentrations of 5 vol % and 50 vol % n-butane before routing the fluid stream through at least one subsequent adsorbent-containing volume prior to venting to the atmosphere wherein the subsequent adsorbent-containing volume is characterized by an incremental adsorption capacity at 25° C. of less than 35 g n-butane/L between vapor concentrations of 5 vol % and 50 vol % n-butane.

19. The method of claim 18 wherein the initial adsorbent volume and the subsequent adsorbent volume are located in a single automotive evaporative emissions canister.

20. The method of claim 18 wherein the initial adsorbent volume and the subsequent adsorbent volume are located in separate canisters that are connected to permit sequential contact by the fuel vapor.

21. The method of claim 18 wherein the initial adsorbent volume and the subsequent adsorbent volume are activated carbon derived from materials selected from the group consisting of wood, peat, coal, coconut, lignite, petroleum pitch, petroleum coke, coal tar pitch, fruit pits, nut shells, sawdust, wood flour, synthetic polymer, and natural polymer and activated by chemical and/or thermal activation methods.

22. The method of claim 18 wherein the initial adsorbent volume and the subsequent adsorbent volume are inorganic materials selected from the group consisting of zeolites, porous silica, and molecular sieves.

23. The method of claim 18 wherein the initial adsorbent volume and the subsequent adsorbent volume are porous polymers.

24. The method of claim 18 wherein the subsequent adsorbent volume exhibits adsorption capacities achieved by volumetric dilution.

25. The method of claim 24 wherein the volumetric dilution is accomplished by the addition of a non-adsorbing filler as a co-ingredient by an addition process selected from the group consisting of addition with the activated carbon raw material prior to activation, addition with the adsorbent before forming into a shaped particle or monolith, and a combination thereof.

26. The method of claim 24 wherein the volumetric dilution is accomplished by forming the adsorbent into high voidage shapes selected from the group consisting of stars, hollow cylinders, asterisks, spirals, cylinders, and configured ribbons.

27. The method of claim 24 wherein the volumetric dilution is accomplished by forming the adsorbent into a honeycomb or monolith shape.

28. The method of claim 24 wherein the volumetric dilution is accomplished by the use of inert spacer particles, trapped air spaces, foams, fibers, and screens external to the adsorbent.

29. The method of claim 25 wherein the non-adsorbing filler is a solid after processing.

30. The method of claim 25 wherein the non-adsorbing filler is volatized or combusted to form voidages larger than 50 Å width within the shaped particle or monolith.

* * * * *

New Claims:

31. In an evaporative emissions control system for a vehicle comprising, in combination, a fuel tank for storing a volatile fuel, an engine having an air induction system and adapted to consume the fuel, a canister containing an initial volume of fuel vapor adsorbent material for temporarily adsorbing and storing fuel vapor from the tank, a conduit for conducting fuel vapor from the tank to a canister vapor inlet, a fuel vapor purge conduit from a canister purge outlet to the induction system of the engine, and a vent/air opening for venting the canister and for admission of air to the canister during operation of the engine induction system, wherein the canister is defined by a fuel vapor flow path via the canister vapor inlet through the initial volume of vapor adsorbent within a first region of the canister toward the vent/air opening, and an air flow path through a subsequent volume of adsorbent within a second region of the canister at the vent/air opening and the first region at the purge outlet, such that fuel vapor formed in the tank flows through the vapor inlet into the initial volume of adsorbent where it is adsorbed and, during operation of the engine induction system, ambient air flows in a path to and through the vent/air opening and along the air flow path in the canister through the initial volume and the purge outlet to the induction system of the engine, the flow of air removing a portion of the adsorbed fuel vapor but leaving a residue of fuel in the initial volume,

the improvement wherein at least one subsequent volume of vapor adsorbent material comprises a volume of 1% to 100% of the first volume and is located either inside of the canister within the second region thereof or outside of the canister, and wherein the initial volume of vapor adsorbent material is characterized by an incremental adsorption capacity at 25°C of greater than 35 g n-butane/L-bed between vapor concentrations of 5 vol% and 50 vol% n-butane before routing the fluid stream through at

least one subsequent volume of vapor adsorbent material wherein the subsequent volume of vapor adsorbent material is characterized by an incremental adsorption capacity at 25°C of less than 35 g n-butane between vapor concentrations of 5 vol% and 50 vol% n-butane.

32. The system of claim 31 wherein the second volume of vapor adsorbent material is located outside the canister in a separate subsequent canister.

33. The system of claim 31 wherein the initial volume of vapor adsorbent material and the subsequent volume of vapor adsorbent material are activated carbon derived from materials selected from the group consisting of wood, peat, coal, coconut, lignite, petroleum pitch, petroleum coke, coal tar pitch, fruit pits, nut shells, sawdust, wood flour, synthetic polymer, and natural polymer having been activated by a process selected from the group consisting of chemical, thermal, and combined chemical/thermal activation methods.

34. The system of claim 31 wherein the initial volume of vapor adsorbent material and the subsequent volume of vapor adsorbent material are inorganic materials selected from the group consisting of zeolites, porous silica, porous alumina, pillared clays, and molecular sieves.

35. The system of claim 31 wherein the initial volume of vapor adsorbent material and the subsequent volume of vapor adsorbent material are porous polymers.

36. The system of claim 31 wherein the subsequent volume of vapor adsorbent material exhibits adsorption capacities achieved by volumetric dilution.

37. The system of claim 36 wherein the volumetric dilution is accomplished by the addition of a non-adsorbing filler as a co-ingredient by an addition process selected from the group consisting of addition with the activated carbon raw material prior to activation, addition with the adsorbent before forming into a shaped particle or monolith, and a combination thereof.

38. The system of claim 36 wherein the volumetric dilution is accomplished by

forming the adsorbent material into high voidage shapes selected from the group consisting of stars, hollow cylinders, asterisks, spirals, cylinders, and configured ribbons.

39. The system of claim 36 wherein the volumetric dilution is accomplished by forming the adsorbent into a honeycomb or monolith shape.

40. The system of claim 36 wherein the volumetric dilution is accomplished by the use of inert spacer particles, trapped air spaces, foams, and screens external to the adsorbent.

41. The system of claim 37 wherein the non-adsorbing filler is a solid after processing.

42. The system of claim 37 wherein the non-adsorbing filler is volatized or combusted to form voidages larger than 50Å width within the shaped particle or monolith.

43. A canister operative for use in automotive systems for emission control defined by a canister vapor inlet to permit a fuel vapor flow path through an initial volume of vapor adsorbent within a first region of the canister toward a canister vent/air opening to permit a continued air flow path through a subsequent volume of adsorbent within a second region of the canister at the vent/air opening and the first region at a canister purge outlet, such that fuel vapor formed in a tank for storing volatile fuel flows through the canister vapor inlet into the initial volume of adsorbent where it is adsorbed and, during operation of an engine induction system, ambient air is caused to flow in a path to and through the vent/air opening and along the air flow path in the canister through the initial volume and the purge outlet to the induction system of the engine, wherein the flow of air removing a portion of the adsorbed fuel vapor but leaving a residue of fuel in the initial volume, and wherein at least one subsequent volume of vapor adsorbent material comprises a volume of 1% to 100% of the initial volume and is located either inside of the canister within the second region thereof or outside of the canister, and wherein the initial volume of vapor adsorbent material is

characterized by an incremental adsorption capacity at 25°C of greater than 35 g n-butane/L-bed between vapor concentrations of 5 vol% and 50 vol% n-butane before routing the fluid stream [air flow?] through at least one subsequent volume of vapor adsorbent material wherein the subsequent volume of vapor adsorbent material is characterized by an incremental adsorption capacity at 25°C of less than 35 g n-butane between vapor concentrations of 5 vol% and 50 vol% n-butane.

44. The canister of claim 43 wherein the second volume of vapor adsorbent material is located outside the canister in a separate subsequent canister.

45. The canister of claim 43 wherein the initial volume of vapor adsorbent material and the subsequent volume of vapor adsorbent material are activated carbon derived from materials selected from the group consisting of wood, peat, coal, coconut, lignite, petroleum pitch, petroleum coke, coal tar pitch, fruit pits, nut shells, sawdust, wood flour, synthetic polymer, and natural polymer having been activated by a process selected from the group consisting of chemical, thermal, and combined chemical/thermal activation methods.

46. The canister of claim 43 wherein the initial volume of vapor adsorbent material and the subsequent volume of vapor adsorbent material are inorganic materials selected from the group consisting of zeolites, porous silica, porous alumina, pillared clays, and molecular sieves.

47. The canister of claim 43 wherein the initial volume of vapor adsorbent material and the subsequent volume of vapor adsorbent material are porous polymers.

48. The canister of claim 43 wherein the subsequent volume of vapor adsorbent material exhibits adsorption capacities achieved by volumetric dilution.

49. The canister of claim 48 wherein the volumetric dilution is accomplished by the addition of a non-adsorbing filler as a co-ingredient by an addition process selected from the group consisting of addition with the activated carbon raw material prior to activation, addition with the adsorbent

before forming into a shaped particle or monolith, and a combination thereof.

50. The canister of claim 48 wherein the volumetric dilution is accomplished by forming the adsorbent material into high voidage shapes selected from the group consisting of stars, hollow cylinders, asterisks, spirals, cylinders, and configured ribbons.

51. The canister of claim 49 wherein the volumetric dilution is accomplished by an adsorbent formed into a honeycomb or monolith shape.

52. The canister of claim 48 wherein the volumetric dilution is accomplished by the inclusion of inert spacer particles, trapped air spaces, foams, and screens external to the adsorbent.

53. The canister of claim 49 wherein the non-adsorbing filler is a solid after processing.

54. The canister of claim 49 wherein the non-adsorbing filler is volatized or combusted to form voidages larger than 50Å width within the shaped particle or monolith.